



Winter Sowing in Recycled Containers

For year-round gardeners, the winter solstice on December 21st signals the beginning of a new season of gardening: the best time to sow seeds which need vernalization – an extended period of cold temperatures – in order to germinate well. Since digging outside during the coldest months is problematical, winter sowing in containers is an enjoyable way to bring more native plants to your landscape, build a butterfly and pollinator garden or fill your cutting garden with summer-blooming perennials.

Reproducing Nature with Stratification

Winter is a necessary season for perennials, both as a resting period for the dormant mother plant and a preparation period for the expectant seeds. Vigorous self-seeders such as *Agastache* and *Monarda* will prove this for you each spring as the mother plant unfurls new green foliage, surrounded by scattered seedlings. Gardeners are often not as successful as the forces of nature when we intentionally sow seeds in our perennial beds in late fall – heavy rains, marauding animals and inadvertent neglect often result in frustration and disappointment. While it may be easier to monitor seeds by starting them indoors, difficulties in reproducing the winter conditions that naturally cause seeds to break dormancy may result in low germination. In order to simulate this necessary cold period – or warmth followed by cold – gardeners have relied on variations of a technique called stratification. This is accomplished by keeping seeds cool and moist for a specified period of weeks, usually in a refrigerator, before setting them in warmth and light. Keeping track of indoor seed schedules can quickly become confusing and overly complicated. Using recycled containers for outdoor winter sowing is an easy, low-tech, alternative method with high yields of sturdy seedlings. It takes advantage of the outdoor winter temperature while keeping the seeds easily monitored – and it's lots of fun! Winter sowing may be used to start annual flower and vegetable seeds that don't need vernalization, though this should be done more towards the end of winter.

Select Your Seeds

Deciding what to choose for your winter sowing containers will depend on your garden plans. Native plants are excellent first choices, especially if you have permission for wild-collecting, and most of them germinate easily when winter sown. When selecting non-native flowering species or hybridized cultivars it's best to check the information found in seed listings and on seed packets. Look for key phrases such as:

- Self-sows; re-seeds; will colonize (i.e. prolific producers of fertile seed)
- Needs pre-chilling; needs stratification; chill/refrigerate/freeze seeds for x amount of days or weeks
- Can be sown outside in late summer/early fall; sow outside in late fall
- Sow in early spring when soil is cool and light frost is still possible; sow outside as soon as the soil can be worked
- Sow outside x weeks before average last frost date (which is April 15th in St. Louis)

Lists of suitable flowers, herbs and natives are on the last two pages, but we encourage you to experiment! Seeds are full of their own wisdom and will choose their own time to germinate, surprising you with their adaptability. If you'd like to hedge your bets, however, try starting half your seeds indoors under lights, and the other half winter-sown outside.

Timing Your Project

When the seed packet indicates an outdoor sowing time of 6-8, 4-6, or 2-4 weeks before the average last frost date, winter sowing is a great option. Because of the protection of your mini-greenhouse, you will have a greater latitude in interpreting these numbers. Generally speaking, those perennials and herbs which don't go completely dormant and are known for their evergreen winter presence are good candidates for the earliest sowing in January and early February. These may be followed by a second wave of planting for the herbaceous perennials and the cold-start annual flowers and herbs some time in February. The third wave is experimental, jump-starting annual flowers and herbs as well as cold-tolerant vegetables in March. When selecting seeds, avoid those that should be sown outside on or after the average last frost date – they are best sown directly into the ground. Many winter-sowing enthusiasts start *all* their plants in containers outdoors including frost-intolerant annuals and summer vegetables such as tomatoes, peppers, squash and beans. It's worth an experiment though it may prove impractical with the higher risk of low germination and cold-kill.

Collect Your Materials

- Milk, water or apple cider jugs: ½ gallon or 1-gallon translucent plastic (not white), lids not needed. Other containers are mentioned as possibilities, but these jugs are the easiest to cut, require the least amount of transformation, have handles for transport and are reusable and/or recyclable when the project is done.
- Box cutter and/or scissors; duct tape or waterproof package tape
- Seed-starting mix and seeds; plastic plant markers or popsicle sticks; permanent marker

Assemble & Place Your Miniature Greenhouse

- Make the drainage slits: turn the milk jug on its side and cut two 2" slits on each side of the jug – they should wrap around the edge to the bottom. Go slowly – if you press too hard the box cutter will cut too far!
- Measure and draw a line around the milk jug about 3" up from the base, and then carefully cut on the line – not all the way around though: leave a 2" piece that will form a hinge.
- Put a short piece of duct tape on the bottom with the seed name on it – plant markers may fall out or fade in the sun.
- Fill the base with moist seed-starting mix and plant your seeds, relatively thickly and at the proper depth.
- Add the plant marker, close up the lid and tape it shut, running the tape completely around the perimeter of the jug.
- Take your winter-sown milk jug outside and place it in a sunny spot. Make sure that it is firmly nestled in so that it won't be blown down or knocked over by squirrels. Twist-ties are useful to attach it to a fence or trellis.

The Long Wait – Opening Up – Chunk Transplanting

- The open mouth of the milk jug is serendipitously just the right size, protecting the seeds yet allowing the right amount of air and water to enter. The sun will provide light and warmth to produce germination when the right moment arrives.
- Check your little greenhouses every week or so. You may want to dribble in a little water if there hasn't been any rain or snow but mostly you will be doing nothing except waiting patiently.
- As spring approaches, you will start to see seedlings sprouting. Don't rush opening up the lids, however. Exposed seedlings run the risk of damage from cold nights, sudden frosts or hard rain.
- Once the lids are off, transplanting may begin when the seedlings have a second set of true leaves and the soil has warmed sufficiently. Each plant will have its own timing, so don't expect to be planting all your greenhouses at once.
- Since the seeds have been sown thickly, we recommend "chunk planting," rather than pricking out individual seedlings. Tip the container on its side and slide out the plant-filled soil – the roots will allow it to come out just like a cake from its pan. Divide it into small chunks of seedlings, gently separating the root mass with your fingers.
- Transplant the chunks into the garden and water them in. Some perennial plants will flower the first summer, others will take time to develop foliage and strong roots, flowering the second year.



Winter Sowing : Botanical Interest Seeds

(seed packets are listed and displayed alphabetically by common name)

First Wave of Planting : January to mid-February

<i>Perennial Flowers</i>		<i>Herbs</i>
Chocolate Flower	Hyssop - Lavender	Catnip
Columbine	Hyssop - True	Chives
Coreopsis	Milkweed	Fennel
Cottage Pinks	Painted Daisy	Lavender
Delphinium	Penstemon	Parsley
Echinacea	Poppy	Sorrel
Flax	Shasta Daisy	Thyme
Forget-me-Not	Verbascum	Watercress
Foxglove	Yarrow	Wild Bergamot

Second Wave of Planting : February

<i>Annual Flowers</i>		
Bachelor's Button	Cleome	Snapdragon
Bee Balm Lambada	Forget-me-Not	Sweet Pea
Bells of Ireland	Larkspur	Verbena
Black-eyed Susan	Linaria	Viola
Bupleurum	Love-in-a-Mist	<i>Herbs</i> Chamomile
Carnation	Money Plant	

Optional Third Wave of Planting : late February to March

<i>Annual Flowers</i>	<i>Herbs</i>	<i>Vegetables</i>
Alyssum	Borage	Arugula
Ammi	Cilantro	Broccoli, Cabbage, Collards
Calendula	Dill	Kale
Coreopsis - Plains	Marjoram	Lettuce
Ice Plant	Mint	Mustard and other Greens
Nasturtium	Sage	Peas
Phlox	Summer/Winter Savory	Swiss Chard

Winter Sowing : Native Wildflower Seeds

This list is selected from currently available seeds from Missouri Wildflowers Nursery. It has been further sorted using the germination codes from Minnesota's Prairie Moon Nursery, which identifies stratification parameters ranging from 120/90 days (autumn planting in situ) to 10 days (easily done in the refrigerator). Consider this list as a starting point since their selections and availability will vary. Both nurseries have excellent information about gardening with natives as well as prime quality seeds (and plants). While choosing Missouri grown and harvested seeds will be optimal for St. Louis, exploring and experimenting with other possibilities may lead to winter sowing amazement!

Needs 90 days of cold stratification – set out at the beginning of January

Echinacea pallida

Needs 60 days of cold stratification – set out before mid-January

<i>Anemone virginiana</i>	<i>Liatris aspera</i>	<i>Phlox pilosa</i>
<i>Antennaria neglecta</i>	<i>Liatris pycnostachya</i>	<i>Polemonium reptans</i>
<i>Aquilegia canadensis</i>	<i>Lobelia cardinalis</i>	<i>Ruellia humilis</i>
<i>Blephilia ciliata</i>	<i>Lobelia siphilitica</i>	<i>Scutellaria incana</i>
<i>Boltonia asteroides</i>	<i>Mimulus ringens</i>	<i>Silene stellata</i>
<i>Castilleja coccinea</i>	<i>Monarda bradburiana</i>	<i>Silphium laciniatum</i>
<i>Conoclinium coelestinum</i>	<i>Oenothera macrocarpa</i>	<i>Silphium perfoliatum</i>
<i>Coreopsis tripteris</i>	<i>Oligoneuron rigidum</i>	<i>Silphium terebinthinaceum</i>
<i>Echinacea paradoxa</i>	<i>Parthenium integrifolium</i>	<i>Solidago nemoralis</i>
<i>Eryngium yuccifolium</i>	<i>Phemeranthus calycinus</i>	<i>Solidago riddellii</i>
<i>Gentiana andrewsii</i>	<i>Phlox paniculata</i>	<i>Symphyotrichum novae-angliae</i>

Needs 30 days of cold stratification – set out before mid-February

<i>Asclepias hirtella</i>	<i>Callirhoe digitata</i>	<i>Liatris mucronata</i>
<i>Asclepias incarnata</i>	<i>Callirhoe involucrata</i>	<i>Penstemon cobaea</i>
<i>Asclepias syriaca</i>	<i>Coreopsis lanceolata</i>	<i>Penstemon digitalis</i>
<i>Asclepias tuberosa</i>	<i>Eupatorium perfoliatum</i>	<i>Ratibida columnifera</i>
<i>Asclepias viridis</i>	<i>Heliopsis helianthoides</i>	<i>Ratibida pinnata</i>
<i>Callirhoe bushii</i>	<i>Heuchera richardsonii</i>	

Needs 10 days of cold stratification – set out in late February

Baptisia alba, Baptisia australis, Baptisia bracteata

For More Information:

Trudi Greissle Davidoff has written extensively on winter sowing: <http://www.wintersown.org/index.html>

From Seed to Bloom: How to Grow over 500 Annuals, Perennials & Herbs – Eileen Powell, Storey Books, 1995

Missouri Wildflowers Nursery <http://mowildflowers.net/> Prairie Moon Nursery <https://www.prairiemoon.com/>